

Hospital-acquired infections in Belgian acute-care hospitals: burden of disease and potential cost savings.

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Presenting author's short biography

Jeroen Trybou is research assistant at the Health Care Management Center Ghent and the Interuniversity Centre of Health Economics (Ugent-VUB). His PhD research focuses on the hospital-physician relationship. He acts as strategic and financial advisor for several Health Care organizations. He is guest lecturer in the domain of Health Care Management & Policy at the HUBrussel and acts as board member of de 'Vereniging voor GezondheidsEconomie'. His key research interests include organizational and financial aspects of Health Care delivery, a domain in which he published several peer-reviewed articles.

Introduction

Hospital Acquired Infections (HAIs) are considered to be one of the most serious patient safety issues in healthcare today. It has been shown that HAIs contribute significantly not only to morbidity and mortality, but also to excessive costs for the health care system and for hospitalized patients. Since possibilities of prevention and control exist, hospital quality can be improved while simultaneously the cost of care is reduced. The objectives of this study were to examine the prevalence and the excess costs associated with HAIs.

Methods

A retrospective observational study was performed to estimate costs associated with hospital-acquired infections in Belgian hospitals, both in procedural admissions and in medical admissions. Hospital, diagnosis-related group, age and gender were used as matching factors to compare stays associated with HAIs and without HAIs. Data were obtained from the Minimum Basic Data Set 2008 used by Belgian hospitals to register case-mix data for each admission to obtain reimbursement from the authorities. Data included information from 45 hospitals representing 16,141 beds and 2,467,698 patient stays. Using the 2008 national feedback programme of the Belgian government, cost data were collected (prolonged length of stay, additional pharmaceuticals and procedures) and subsequently linked to the data set. By means of a sensitivity analysis we estimated potential monetary savings when a reduction in the incidence of HAIs in hospitals having a higher rate of hospital-acquired infections in comparison to other hospitals would be realized.

Results

In our sample 5.9% of the hospital stays were associated with a hospital-acquired infection. The additional mean cost of the hospital-acquired infection was € 2,576 for all stays and € 3,776 for procedural stays ($P < 0.001$). The burden of disease in Belgium is estimated at € 533,076,110 (all admissions) and € 235,667,880 (procedural admissions). The excess length of stay varied between hospitals from 2.52 up to 8.06 days (Md= 4.58, SD= 1.01), representing an associated cost of € 355,060,174. The cost of additional medical procedures and additional pharmaceutical products was estimated at € 62,864,544 and € 115,151,939. We provide a full overview of the potential monetary savings when reductions in HAIs are realized by applying different thresholds. For instance, if all Belgian hospitals having a higher rate of hospital-acquired infections improve their rate to the level of the hospital corresponding to percentile 75 (= 7.5% HAI) savings would be € 17,799,326.

Discussion

Since opportunities in prevention and control exist, HAIs are an important possibility to improve hospital quality while simultaneously the cost of care delivery is reduced. In this report, we estimated the burden of hospital-acquired infections from a public healthcare provider's perspective. Many western countries are seeking ways to improve cost-effectiveness of hospital care delivery by increasing provider accountability. While this is a valuable avenue for policy improvement, not all HAIs are preventable and therefore shifting all risk to providers seems not desirable. Furthermore, excess costs estimated for HAIs should definitely not be interpreted as financial resources which would become available in the short term. Cost savings realised could be used to install supportive policy measures to increase the knowledge and practice of HAI prevention, thereby improving quality and safety of hospital care delivery.